

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all earlier versions:

Claim 1 (currently amended). A nozzle for a hose or fixed pipework installation, the nozzle comprising:

a nozzle body;

a channel extending through the nozzle body ~~of the nozzle~~; and

a fluid deflector arranged at or near a ~~the~~ downstream end of the channel, and wherein the fluid deflector and the nozzle body have substantially parallel surfaces determining ~~determines~~ the direction of flow of the fluid as it leaves the nozzle;

wherein the fluid flow deflector and the nozzle body together define a width of an opening from the channel at or near said downstream end, wherein ~~said channel width being variable by adjusting~~ a position of the fluid deflector is adjustable relative to the nozzle body to vary the width of the channel opening to thereby provide;

~~wherein the nozzle comprises a self-cleaning mechanism for adjusting the channel width.~~

Claims 2-3 (canceled).

Claim 4 (currently amended). A nozzle as claimed in Claim 29 wherein the fluid deflector includes a deflecting surface positioned relative to the end of the first channel to define the width of the first channel opening at or near the downstream end of the channel.

Claim 5 (currently amended). A nozzle as claimed in Claim 4 wherein at least part of the first channel is defined between the deflecting surface and an outlet surface of the body.

Claim 6 (original). A nozzle as claimed in Claim 5 wherein the deflecting surface and the body outlet surface are substantially parallel.

Claim 7 (original). A nozzle as claimed in Claim 4 wherein the deflector surface is disposed at an obtuse angle relative to a main axis of the body.

Claim 8 (canceled).

Claim 9 (currently amended). A nozzle as claimed in Claim 1 wherein the fluid deflector is movably mounted relative to the body, to enable adjustment of a position of the deflector relative to the body, to facilitate adjustment of the channel opening width.

Claim 10 (currently amended). A nozzle as claimed in Claim 1 wherein the channel is provided with a gap or space suitable for accommodating a spacer to alter the position of the fluid deflector relative to the end of the channel, thereby varying the width of said channel opening.

Claim 11 (currently amended). A nozzle as claimed in Claim 1 wherein the deflector is threadably coupled to the body, such that rotation of the deflector relative to the body selectively advances [[and/]]or retracts the deflector relative to the body, thereby facilitating adjustment of the channel opening width.

Claim 12 (canceled).

Claim 13 (previously presented). A nozzle as claimed in Claim 1 wherein the self-cleaning mechanism comprises an actuator and one or more sensors, the actuator moving the deflector in response to a detected reduction in fluid flow rate indicative of trapped debris in the nozzle.

Claim 14 (previously presented). A nozzle as claimed in Claim 4 wherein the fluid deflector comprises the deflecting surface and a central beam extending from the deflecting surface into the body of the nozzle, the central beam being attachable to the body of the nozzle.

Claim 15 (currently amended). A nozzle as claimed in Claim 29 wherein the first channel extending through the body of the nozzle is an annular channel.

Claim 16 (currently amended). A nozzle as claimed in Claim 29 wherein the nozzle further comprises a central channel extending through a central beam through the deflector and the body ~~of the nozzle~~.

Claim 17 (canceled).

Claim 18 (currently amended). A nozzle as claimed in Claim 29 wherein the first nozzle is further provided with a sensor ~~means~~.

Claim 19 (currently amended). A nozzle as claimed in Claim 18 wherein the sensor ~~means~~ is located in the fluid deflector.

Claim 20 (currently amended). A nozzle as claimed in Claim 19 wherein the sensor is ~~means~~ are embedded in a front surface of the fluid deflector.

Claim 21 (currently amended). A nozzle as claimed in Claim 18 wherein the sensor ~~means~~ is located in the body of the nozzle.

Claim 22 (currently amended). A nozzle as claimed in Claim 16 wherein the nozzle further comprises a filter coupling to couple means for coupling a filter to an the upstream end of the central channel.

Claim 23 (currently amended). A nozzle as claimed in Claim 16 wherein the nozzle further comprises a secondary nozzle coupling to couple nozzle-coupling means for coupling a secondary nozzle to a the downstream end of the central channel.

Claim 24 (previously presented). A nozzle as claimed in Claim 29 wherein the fluid deflector is frusto-conical and is thus provided with a frusto-conical deflecting surface, angled away from the direction of fluid flow.

Claim 25 (original). A nozzle as claimed in Claim 24 wherein the frusto-conical deflecting surface extends beyond the maximum width of the channel to direct the flow of fluid.

Claim 26 (currently amended). A kit of parts for a nozzle for forming a water wall around a flare in a hydrocarbon well-test operation, the kit of parts comprising a body, a fluid deflector and a coupling means adapted to connect the fluid deflector to the body, wherein the kit of parts when assembled forms the nozzle ~~of Claim 29~~ comprising:

the body, wherein the body has an inlet and an outlet;

a channel extending through the body between the inlet and the outlet; and

the fluid deflector coupled to the body and arranged at or near a downstream end of the channel adjacent the body outlet;
wherein the fluid deflector and the body together define a width of an opening from the channel at or near said downstream end, said channel opening width being variable by adjusting a position of the fluid deflector relative to the body;
wherein the body inlet, the body outlet and the fluid deflector are arranged on a longitudinal axis of the body such that, in use, the fluid flows from the body inlet along the channel to the body outlet and impinges on the fluid deflector with minimal energy loss prior to impingement on the fluid deflector;
wherein the nozzle comprises a self-cleaning mechanism for adjusting the channel opening width; and
wherein the fluid deflector determines the direction of flow of fluid as it leaves the nozzle, wherein the fluid leaving the nozzle forms a water wall for heat suppression near the flare.

Claims 27–28 (canceled).

Claim 29 (currently amended). A hydrocarbon well-test flare nozzle for a hose or fixed pipework installation, the nozzle adapted for forming a water wall around a flare in a hydrocarbon well-test operation and comprising:

a body having an inlet and an outlet;

a first channel extending through the body of the nozzle between the inlet and the outlet; and

a fluid deflector arranged at or near a the downstream end of the first channel adjacent the body outlet, ~~the fluid deflector determining the direction of flow of fluid as it leaves the nozzle;~~

wherein the fluid flow deflector and the nozzle body together define a width of an opening from the first channel at or near said downstream end, said first channel opening width being variable by adjusting a position of the fluid deflector relative to the nozzle body;

wherein the body inlet, the body outlet and the fluid deflector are arranged on a longitudinal axis of the body such that, in use, the fluid flows from the body inlet along the first channel to the body outlet and impinges on the fluid deflector with minimal energy loss prior to impingement on the fluid deflector; and

wherein the nozzle comprises a self-cleaning mechanism for adjusting the channel opening width; and

wherein the fluid deflector determines the direction of flow of fluid as it leaves the nozzle, wherein the fluid leaving the nozzle forms a water wall for heat suppression near the flare.

Claim 30 (previously presented). A nozzle as claimed in Claim 7 wherein the deflector is disposed at an angle of approximately 105 degrees relative to the main axis of the body.

Claim 31 (currently amended). A nozzle as claimed in Claim 29 wherein the fluid deflector is movably mounted relative to the body, to enable adjustment of a position of the deflector relative to the body, to facilitate adjustment of the first channel opening width.

Claim 32 (currently amended). A nozzle as claimed in Claim 29 wherein the channel is provided with a gap or space suitable for accommodating a spacer to alter the position of the fluid deflector relative to the downstream end of the channel, thereby varying the width of said channel opening.

Claim 33 (currently amended). A nozzle as claimed in Claim 29 wherein the deflector is threadably coupled to the body, such that rotation of the deflector relative to the body advances and/or retracts the deflector relative to the body, thereby facilitating adjustment of the channel opening width.

Claim 34 (previously presented). A nozzle as claimed in Claim 29 wherein the self-cleaning mechanism comprises an actuator and one or more sensors, the actuator moving the deflector in response to a detected reduction in fluid flow rate indicative of trapped debris in the nozzle.

Claim 35 (new). A nozzle for forming a water wall for heat suppression near a flare, comprising:

a body;

a channel extending through the body from an upstream end to an annular opening defined by opposing substantially parallel first and second frustoconical surfaces on a downstream end, wherein the first frustoconical surface is formed on the nozzle body, wherein the second frustoconical surface is formed on a fluid deflector, wherein the second frustoconical surface formed on the fluid deflector has an outside diameter larger than an outside diameter of the first frustoconical surface formed on the nozzle body, whereby an angle of the second frustoconical surface with respect to a main axis of the body determines a shape of the water wall formed thereby;

a central beam disposed in the channel to secure the fluid deflector in a position to set a width of the annular opening, wherein the position of the fluid deflector relative to the body is adjustable to vary the width of the annular opening, whereby the width of the annular opening determines a density of the water wall.